

What is claimed is:

1. A reflector for a reflection-type LCD device, comprising:
a roughened surface having a protrusion pattern; and
5 the protrusion pattern giving inclination angle to the surface according to a specific distribution where a first component with an inclination angle value of 0° is 15% or less in area and a second component with an inclination angle value from 2° to 10° is 50% or greater in area.
- 10 2. The reflector according to claim 1, wherein the specific distribution of the inclination angle values of the roughened surface has an average value within a range from 2° to 6° .
- 15 3. The reflector according to claim 1, further comprising:
protrusions arranged in such a way that depressed areas are formed among adjoining ones of the protrusions;
a first bumpy layer formed to cover the protrusions; and
a base layer of the reflector formed on the first layer.
- 20 4. Each of the depressed areas has a closed geometric shape;
wherein the first layer has a bumpiness generated by the protrusions;
and wherein the base layer has a bumpiness corresponding

to the bumpiness of the first layer, thereby forming the protrusion pattern of the surface of the reflector.

4. The reflector according to claim 3, wherein the closed geometric
5 shape of each of the depressed areas is like one selected from the group consisting of triangle, rectangular, and ellipse.

5. The reflector according to claim 3, wherein each of the
protrusions has a width W and a height D , where the width W and
10 the height D have a relationship of $0.5 \leq (D/W) \leq 1.0$.

6. The reflector according to claim 3, wherein the first bumpy layer
has a minimum height d and the protrusions have an inter-center
distance L , where the minimum height d and the inter-center distance
15 L have a relationship of $(1/20) \leq (d/L) \leq (1/5)$.

7. The reflector according to claim 3, wherein each of the
protrusions has a height D and the first bumpy layer has a minimum
height d , where the height D and the minimum height d have a
20 relationship of $(D/d) \leq 3$.

8. The reflector according to claim 3, wherein the protrusions
included in a single pixel have a single maximum value of height.

9. A reflector for a reflection-type LCD device, comprising:
a roughened surface having a protrusion pattern;
the protrusion pattern giving a variation range of
5 chromaticity coordinates (x, y) on a chromaticity diagram dependent
on an angle of view; and
the variation range being limited in a circle on the
chromaticity diagram, where the circle has a radius of approximately
0.05 and a center at a point corresponding to white color.
10. The reflector according to claim 9, further comprising
protrusions arranged in such a way that depressed areas are
formed among adjoining ones of the protrusions;
a first bumpy layer formed to cover the protrusions; and
15 a base layer of the reflector formed on the first layer;
wherein each of the depressed areas has a closed geometric
shape;
and wherein the first layer has a bumpiness generated by
the protrusions;
- 20 and wherein the base layer has a bumpiness corresponding
to the bumpiness of the first layer, thereby forming the protrusion
pattern of the surface of the reflector.
11. The reflector according to claim 10, wherein the closed

geometric shape of each of the depressed areas is like one selected from the group consisting of triangle, rectangular, and ellipse.

12. The reflector according to claim 10, wherein the first bumpy layer has a minimum height d and the protrusions have an inter-center distance L , where the minimum height d and the inter-center distance L have a relationship of $(1/15) \leq (d/L)$.

13. The reflector according to claim 9, wherein the protrusion pattern gives a specific distribution of inclination angle values to the surface;

and wherein when incident light is irradiated to the surface of the reflector, bright regions with specific extent are generated, each of which has an inclination angle value within a range from 2° to 6° .

14. The reflector according to claim 13, wherein when minimum and maximum distances between the protruding bright region and the adjoining depressed bright region are defined as L_{min} and L_{max} , respectively, and a mean distance between the protruding and depressed bright regions is defined as $L_{mean} = (L_{min} + L_{max})/2$, a relationship of

$$(L_{min} - L_{max})/L_{mean} \geq 0.2$$

is established.

15. The reflector according to claim 10, wherein the closed
geometric shape of each of the depressed areas is like one selected
5 from the group consisting of triangle, rectangular, and ellipse.

16. A reflection-type LCD device comprising one of the reflectors
according to one of claims 1 to 15.